PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Yakima/Klickitat Fisheries Project Operations And Maintenance

BPA project number: 9701325
Contract renewal date (mm/yyyy): 1/2000 ☐ **Multiple actions?**

Business name of agency, institution or organization requesting funding
Yakama Indian Nation

Business acronym (if appropriate) YIN

Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses
7.4K, 7.1A, 7.1B, 7.1C, 7.1D, 7.1F, 7.2D, 7.3B, 7.4A, 7.6A, 7.6A.2, 7.6B.3, 7.6B.6, 7.6D, 7.7, 7.8E

FWS/NMFS Biological Opinion Number(s) which this project addresses
NMFS Biologcial Opinion for the 1995 to 1998 Hatchery Operations in the Columbia River Basin (NMFS 1995a), BPA's Biological Assessment of 1997-2001 Hatchery Operations of the Proposed Cle Elum Hatchery, December 1995 (BPA 1995). NMFS letter dated 4/1/96

Other planning document references
1. Yakima Fisheries Project Final Environmental Impact Statement (1/96)
2. Yakima Fisheries Project Spring Chinook Supplementation Monitoring Plan (Busack et al, 1997).
3. Wy Kan Ush Me Wa Kush Wit (CRITFC 1995), Vol 1: pp 5A-2; 5B-13 through 5B-12; Vol 2: pp57 &59.
4. NPPC Yakima and Klickitat Subbasin Plans
5. The ISRG's Return to the River (Williams et al. 1996) -- Restoration of Salmonid Fishes in the Columbia River Ecosystem: Chapter 2.

Short description
This proposal provides for the operation and maintenance of the YKFP's fish production facilities. These facilities are:
1. Cle Elum Supplementation and Research Facility;
2, Prosser Fish Facility; and ,
3. Marion Drain Fish Facility.

Target species
Yakima and Klickitat Subbasin spring chinook, fall chinook, and coho. Steelhead are not being produced at this time, but are being reconditioned at the Prosser Fish Facility.

Section 2. Sorting and evaluation

Subbasin
Yakima

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
☒ Anadromous fish ☐ Resident fish ☐ Wildlife	☐ Multi-year (milestone-based evaluation) ☐ Watershed project evaluation	☐ Watershed councils/model watersheds ☐ Information dissemination ☒ Operation & maintenance ☐ New construction ☐ Research & monitoring ☐ Implementation & management ☐ Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description
20510	Yakima/Klickitat Fisheries Project
9506325	YKFP Monitoring and Evaluation
8811525	YKFP Design and Construction
8812025	YKFP Management, Data & Habitat

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9200220	Physiological assessment of wild and	Physiological/developmental

	hatchery juvenile salmonids	monitoring of hatchery and wild spring chinook juveniles (parr/smolt)
5510200	Yakima River side channel survey and rehabilitation	Complementary habitat enhancement in upper Yakima
5510800	Upper Yakima tributary irrigation improvement	Restores passage to tributaries blocked by irrigation diversions.
5510900	Teanaway River instream flow restoration	Complementary adult passage project (NF Teanaway is an acclimation/release site).
9705100	Yakima Subbasin side channel	Juvenile salmonid rearing habitat.
9100	Re-establish safe access into tributaries of Yakima Subbasin	Improve juvenile salmonid passage and rearing.
9101	Restore upper Toppenish Creek watershed	Improve juvenile salmonid passage and rearing.
9102	Ahtanum Creek watershed assessment	Improve juvenile salmonid passage and rearing.
9603501	Satus Cr. watershed restoration	Improve juvenile salmonid passage and rearing.
9506404	WDFW Policy/Technical Involvement/Planning YKFP	Co-Managers, YKFP
9105500	Supplementation Fish Quality (Yakima Subbasin)	Supplementation Fish Quality (Yakima Subbasin)
9200900	Yakima screens phase II O & M	Basin juvenile salmonid passage
9105700	Yakima phase II screen fabrication	Basin juvenile salmonid passage
9705600	Lower Klickitat ripairian & in-channel habitat enhancement project.	Critical habitat enhancement and information sharing.

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1997	Collected 261 spring chinook broodstock at the Roza adult collection facility	yes, randomly collected target number. Adults transported to CESRF.
1997	Broodstock held at CESRF.	yes, adult mortality rate held below specified limits for CESRF.
1997	239 broodstock spawned in Sept/Oct	yes, egg take 550,000 -- which exceeded projected estimates.
1997	Eggs incubated and hatched	yes, met project survival objectives.
1998	Juveniles ponded and OCT/SNT experimental treatments applied.	yes, met project experimental objectives.
1998	Collected 408 spring chinook broodstock at the Roza adult collection facility.	yes, while target broodstock goal for full production was 550, the low adult returns and project-based

		genetic constraints limited the number of broodstock collected. A maximum of 50% of the returning run was collected. Adults were transported to CESRF.
1998	Broodstock held at CESRF.	yes, adult mortality rate held below specified limits for CESRF.
1998	350 broodstock spawned in Sept/Oct	no, egg take was limited by broodstock collection constraints.
1998	Eggs incubated.	yes, met project survival objectives.
1994	1994-1998 Acclimated 1.7 million Up-River Brights (URB) at PFF.	yes, met project acclimation/release objectives.
1996	1996-1998 Initiated fall chinook broodstock capture feasibility .	yes, successfully tested the feasibity of broodstock collection at Prosser Dam, Chandler canal, lower Yakima River gillnet sites, and Marion Drain.
1996	1996-present Spawned, incubated and hatched fall chinook at PFF and MDFF.	yes, met project survival objectives and "debugged" these new facilities.
1994	1994-1998 Acclimated from 700,000 (1994-1996) to 1.4 million coho smolts from lower Columbia River hatcheries.	yes, met project acclimation/release objectives.
1997	1997-1998 Initiated coho broodstock collection feasibilitly work.	yes, successfully tested the feasibity of broodstock collection at Prosser Dam.
1997	1997-1998 Spawned, incubated and hatched coho at PFF.	yes, met project survival objectives and "debugged" these new facilities.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	To operate and maintain fish production and research facilities critical to the Yakima/Klickitat Fisheries Project.	a	Collect, transport and hold spring and fall chinook and coho broodstock.
		b	Spawn broodstock.
		c	Incubate eggs collected.
		d	Rear juveniles
		e	Transport, acclimate and release juveniles.

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	1/2000	12/2000	To meet the biological specifications for broodstock collection, spawning, incubation, rearing and acclimation/release		1
				Total	100.00%

Schedule constraints
Potential constraints include NEPA compliance and environmental uncertainties.

Completion date
2048

Section 5. Budget

FY99 project budget (BPA obligated): $2,243,604

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel		%36	812,650
Fringe benefits		%6	143,237
Supplies, materials, non-expendable property		%13	301741
Operations & maintenance		%16	354,333
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		%1	30,000
NEPA costs		%0	0
Construction-related support		%0	0
PIT tags	# of tags: 0	%0	0
Travel		%1	25,000
Indirect costs		%17	381480
Subcontractor	USFWS: Fish Health Monitoring	%6	130177
Subcontractor	Perry Boone: Housing Rental	%1	29410

Subcontractor	Simplex: CESRF Alarm System	%0	2752
Subcontractor	Ros Elum Services	%0	9730
Subcontractor	Burlington Northern Railroad	%0	1000
Subcontractor	Kittitas County	%0	7,200
Subcontractor	City of Cle Elum	%0	2500
Subcontractor	Yet to be determined	%0	8320
Subcontractor	Personal Comm. Industry Assoc.	%0	630
Subcontractor	Yet to be determined	%1	20,000
Other		%0	0
TOTAL BPA FY2000 BUDGET REQUEST			$2,260,160

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
		%0	
		%0	
		%0	
		%0	
Total project cost (including BPA portion)			$2,260,160

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	$2,550,771	$2,823,757	$3,321,032	$3,520,974

Section 6. References

Watershed?	Reference
☐	Busack, C., B. Watson, T. Pearsons, C. Knudsen, S. Phelps, M. Johnston. 1997. Yakima Fisheries Project Spring Chinook Supplementation Monitoring Plan. Report, DOE/BP-64878-1. Bonnevile Power Administration, Portland, OR.
☐	CRITFC (Columbia River Intertribal Fish Commission). 1995. Wy-Kan-Ush-Mi W-Kish-Wit (Spirit of the Salmon). Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakama Tribes.
☐	RASP (Regional Assessment of Supplementation). 1992. Supplementation in the Columbia River Basin, Parts 1-5. Report, Bonneville Power Administration, Portland, OR.
☐	Williams et al. 1996. Return to the river: restoration of salmonid fishes in the Columbia River ecosystem. Independent Scientific Review Group, Northwest Power Planning Council, 10 September, 1996.

PART II - NARRATIVE

Section 7. Abstract

The Yakima/Klickitat Fisheries Project (YKFP or Project) is a supplementation project designated by the NPPC as the principal means of protecting, mitigating and enhancing the anadromous fish populations in the Yakima and Klickitat Subbasins. The Project's production and research activities will be brought on-line in gradual stages. The first phase (tier) includes the supplementation of upper Yakima River spring chinook. This initial phase also includes research designed to determine the feasibility of re-establishing a naturally spawning population of coho salmon in the Yakima basin. YKFP fish production also includes fall chinook, which are being studied to determine those aspects of the supplementation program which may be applicable. Also envisioned for the Project's future is fish production (which could include the introduction of supplementation) in the Klickitat Subbasin. At the present, the Project does not operate a fish production facility in the Klickitat Subbasin.

The O & M *sub-proposal* currently covers the following YKFP's fish production and research facilities: the Cle Elum Supplementation and Research Facility (CESRF); the Prosser Fish Facility (PFF); and, the Marion Drain Fish Facility (MDFF). Policy direction and planning for each facility's operation is accomplished through the joint efforts of the YIN and WDFW. All facilities are operated by the YIN. All of the YKFP's fish production activities are covered by the O & M *sub-proposal.* These activities include: broodstock collection, spawning, incubation, rearing, and acclimation/release for fall and spring chinook and coho.

Section 8. Project description

a. Technical and/or scientific background

The operation and maintenance of the YKFP's fish production and research facilities are critical to Project success, specifically they are necessary to:

- Test the hypothesis that new supplementation techniques can be used in the Yakima and Klickitat River basins to increase natural production and to improve harvest opportunities, while maintaining the long-term genetic fitness of the wild and native salmonid populations and keeping adverse ecological interactions within acceptable limits;
- Attain knowledge about the use of supplementation, so that it may be used to mitigate effects on anadromous fisheries throughout the Columbia River Basin;

Supplementation is defined as the utilization of artificial propagation in an attempt to maintain or increase natural production while maintaining long-term fitness of the target population and while keeping ecological and genetic impacts on nontarget species within specified limits (RASP 1992). As applied by the YKFP, its goal (as distinct from conventional hatchery practices) is to increase the numbers of naturally spawning fish in the Yakima and Klickitat basins. Its ultimate goal is to produce enough naturally spawning fish with a high enough survival rate to be able to phase out artificial propagation.

Current YKFP operations have been designed to test the principles of supplementation. The Project's experimental design (see YKFP M&E sub-proposal #9506325) has focused on the following critical uncertainties affecting supplementation:

1. the survival and reproductive success of hatchery fish after release from the hatchery;
2. the impacts of hatchery fish as they interact with non-target species and stocks; and,
3. the effects of supplementation on the long-term genetic fitness of fish stocks.

Through this sub-proposal, project employees will implement the YKFP's experimental design by producing fish subject to the YKFP's experimental treatments specifications as described in the YKFP M&E sub-proposal (# 9506325).

b. Rationale and significance to Regional Programs

The Yakima/Klickitat Fisheries Project was identified in the 1982 Columbia River Basin Fish and Wildlife Program (Measure 704(i)(3) and 904(e)(1). A draft Master Plan was presented to the Northwest Power Planning Council in 1987 and the Preliminary Design Report in 1990. In both cases the NPPC instructed the managers (YIN and WDFW) to carry out planning functions that addressed uncertainties in regard to the adequacy of supplementation in the areas of meeting production objectives and limiting adverse ecological and genetic impacts. At the same time, the Council underscored the importance of adaptive management of the project. Therefore, design and construction of critical facilities is a key component of achieving the objectives and goals of the Project. The YKFP is unique in having been designed to rigorously test the efficacy of supplementation.

c. Relationships to other projects

This project and the following three other FWP projects comprise the component projects of the Yakima/Klickitat Fisheries Project umbrella project:
Project 8812025, "YKFP Management, Data and Habitat"
Project 8811525 "YKFP Design and Construction"
Project 9506325, "YKFP Monitoring and Evaluation"

This project is necessary for the implementation of YKFP monitoring activities being undertaken by YIN and WDFW.

Ten additional FWP habitat improvement projects in the Yakima Subbasin relate to this project as they will influence the quality of the environment the fish encounter. Projects 5510200, "Yakima River Basin Side Channel Survey and Rehabilitation". These projects attempt to correct one of the most serious environmental problems in the upper Yakima: the lack of fry rearing habitat provided by side channels. Projects 5511300, 5511600, and 5511700 are intended to accomplish the same thing in other portions of the Yakima Subbasin. Projects 5510800 ("Upper Yakima Tributary Irrigation Improvement") and 5510900 ("Teanaway River Instream Flow Restoration") both attempt to restore adult and juvenile passage to upper Yakima tributaries dewatered or blocked by irrigation diversions. The Teanaway project is especially important because an acclimation site will be located on the North Fork of the Teanaway River. Finally, projects 9105700, 9107500, 9209900 and 9503300 provide funds for the WDFW Yakima screen shop and the Yakima Project Office of the Bureau of Reclamation (BOR) to build and maintain screens on irrigation diversions and to maintain fisheries monitoring and enhancement facilities (fish ladders, the Chandler and Roza smolt traps, the Roza adult trap, etc.) owned by the BOR.

d. Project history (for ongoing projects)

The O & M *sub-proposal* currently covers the following YKFP's fish production and research facilities: the Cle Elum Supplementation and Research Facility (CESRF); the Prosser Fish Facility (PFF); and, the Marion Drain Fish Facility (MDFF). Below we list a brief history for each facility.

Cle Elum Supplementation and Research Facility

Facilities. The CESRF is the central facility for supplementation of the upper Yakima spring chinook. CESRF construction was completed on August 1, 1997. The facilities consist of 20 raceways, 2 adult holding ponds, egg incubation facilities, groundwater wells, a pump station on the river, cleaning ponds for waste treatment, access roads, a storage building, offices, research facilities, parking, and employee residences. An interpretive center, a research and monitoring and evaluation facility, and additional residence are planned for construction in the future (see YKFP Design and Construction Sub-proposal # 8811525).
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The CESRF also includes three acclimation facilities in the upper Yakima River Subbasin, which are under construction and scheduled for completion in December of 1998. The Easton and Clark Flats acclimation sites are located on the Yakima River near the communities of Easton and Thorp, respectively. The Jack Creek site is located on the North Fork Teanaway River near its confluence with Jack Creek. There are six raceways at each site: three for each of the SNT and OCT experimental treatments (See M & E *sub-proposal*). The acclimation facilities incorporate the features needed to study experimental variables such as feeding techniques, stream cover design, and predator avoidance training.

Fish Production. Upper Yakima spring chinook production at the CESRF began in 1997 with the fertilization and incubation of approximately 550,000 eggs collected from broodstock collected between May and September of 1997. In 1998, approximately 786,000 eggs were fertilized and incubated at the facility. All fish at this facility will be reared under the OCT/SNT experimental treatments. Smolts from the 1997 and 1998 broodyear will be acclimated and volitionally released in spring of 1999 and 2000 respectively.

Prosser Fish Facility

Facilities. The Prosser Fish Facility (PFF) is the central facility for the production of coho and fall chinook in the lower Yakima River. The PFF construction was initiated in 1994. The facilities consist of 7 raceways, 3 ponds for broodstock holding and juvenile rearing/acclimation, egg incubation facilities, groundwater wells, a pump station on Chandler Canal, cleaning ponds for waste treatment, access roads, a storage building, office, parking. Broodstock collection for PFF operations (coho only) was initiated at Prosser Dam's right fish ladder in 1997.

The PFF also includes up to 5 acclimation facilities along the Yakima and Naches rivers. Each site consists of semi-natural rearing ponds. These ponds were developed between 1994 and 1998.

Fish Production. The Prosser fish facility was constructed in 1994. From 1994-1998, this facility was used to acclimate and release 1.7 million Upriver Bright fall chinook smolts. In 1997 and 1998, the Project initiated coho and fall chinook in-basin broodstock collection. These fish were spawned, incubated, and reared at this facility. Additionally, from 1994-1996 the YIN released 700,000 coho smolts under auspices of the CRFMP. In 1997 and 1998 the YIN released 1.2 and 1.4 million coho smolts respectively.

Marion Drain Fish Facility

Facilities. The Marion Drain Fish Facility (MDFF) is the facility for the production of fall chinook for release into Marion Drain, an irrigation water return drain emptying into the lower Yakima River. MDFF development began in 1996. The facility consists of 4 raceways, 2 adult holding and juvenile rearing/acclimation ponds, egg incubation

facilities, groundwater wells, a pump station on the drain, a storage building, office, parking, and an employee residence.

Fish Production. Broodstock collection at this facility began in 1997 and continued in 1998. All fish will be acclimated and released on-site.

e. Proposal objectives

Objective:	Tasks
1. To operate and maintain fish production and research facilities critical to the Yakima/Klickitat Fisheries Project.	1.a Collect, transport and hold spring and fall chinook and coho broodstock.
	1.b Spawn broodstock.
	1.c Incubate eggs collected.
	1.d Rear juveniles.
	1.e Transport, acclimate and release juveniles.

f. Methods

General Methods: Project employees will implement the YKFP's experimental design by producing fish subject to the YKFP's experimental treatments specifications as described in the YKFP M&E sub-proposal (# 9506325). Currently accepted hatchery practices are used by Project employees, except those specifically noted below.

Broodstock Collection, Transport and Holding of Spring and Fall Chinook and Coho: CESRF utilizes a random collection strategy employed at Roza Dam, which ensures that the breadth of the donor stock is represented in production operations. Broodstock collection will not exceed 50% of spring chinook spawner escapement to the upper Yakima in order to minimize adverse genetic impacts upon donor stock (Busack et al. 1997).

Collection of coho broodstock occurs at Prosser Dam, and is anticipated to also take place at Roza and Cowiche dams. Fall chinook broodstock have been collected at Prosser Dam and Marion Drain.

Broodstock Spawning: CESRF utilizes a factorial mating (minimum 2X2 crosses) design to ensure genetic diversity.

Incubation: CESRF manipulates water temperatures during incubation to synchronize embryological development of all egg take groups. This allows all fish to be ponded the following spring simultaneously. During egg traying, each female's eggs are equally divided into OCT and SNT rearing treatments, and incubated separately.

PFF will thermally accelerate 40,000 fall chinook eggs during incubation. These fish will represent the treatment group. The remainder of the fall chinook eggs will be reared under conventional aquaculture standard, and will represent the control group. Statistical tests for differences in smolt-to-smolt and smolt-to-adult survival will be conducted (see YKFP M&E sub-proposal # 9506325).

Rearing: CESRF**:** In the ongoing upper Yakima spring chinook program, two replicated treatments are being tested: a Semi-Natural Innovative Treatment ("SNT") and an Optional Conventional Treatment ("OCT"). OCT fish will be incubated, reared, and acclimated using the currently accepted "Best Technology" used at state, Tribal, and Federal salmonid hatcheries. SNT fish will be incubated, reared, and acclimated in a more natural environment (e.g., cover, naturally colored raceways, and structures). The SNT treatment was designed to raise and release fish with characteristics and behavior similar to those of naturally produced fish in order to achieve improved survival and productivity. Both OCT and SNT groups are reared at densities (0.75 lb/cubic feet). These densities are generally lower than most production facilities.

OCT and SNT fish will be compared (e.g., in terms of physical characteristics and survival to smolt and returning adults) with each other as well as to naturally produced fish. These comparisons will be used to determine whether the spring chinook program is moving toward a successful outcome (see YKFP M&E sub-proposal # 9506325).

PFF will continue different thermal rearing of the test and control treatments defined in the methods for incubation (see above). Juvenile fall chinook included in the test group will be reared under thermally accelerated conditions. The control group will be reared under a conventional ambient thermal profile at PFF.

Acclimation/Release: CESRF also includes three acclimation facilities in the upper Yakima River basin. The Easton and Clark Flats acclimation sites are located on the Yakima River near the communities of Easton and Thorp, respectively. The Jack Creek site is located on the North Fork Teanaway River near its confluence with Jack Creek. There are six raceways at each site: three for each of the SNT and OCT experimental treatments (See M & E *sub-proposal*). Although of standard design, the acclimation facilities incorporate the features needed to study experimental variables such as feeding techniques, stream cover design, and predator avoidance training. The OCT/SNT treatments will also be applied to raceways at the acclimation facilities. Fish will be volitionally released from all acclimation sites.

PFF and MDFF: Fish will be volitionally released from all acclimation sites.

g. Facilities and equipment

Facilities. The CESRF is the central facility for supplementation of the upper Yakima spring chinook. CESRF construction was completed on August 1, 1997. The facilities consist of 20 raceways, 2 adult holding ponds, egg incubation facilities, groundwater wells, a pump station on the river, cleaning waste ponds for waste treatment, access roads, a storage building, offices, research facilities, parking, and employee residences. An interpretive center and additional residence are planned for construction in the future (see YKFP Design and Construction Sub-proposal # 8811525). Should additional facilities be needed in the future, the site can accommodate 45 raceways. A combination of surface water from the Yakima River and groundwater from nearby wells supplies water for facility operation.

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The CESRF also includes three acclimation facilities in the upper Yakima River basin, which are under construction and scheduled for completion in December of 1998. The Easton and Clark Flats acclimation sites are located on the Yakima River near the communities of Easton and Thorp, respectively. The Jack Creek site is located on the North Fork Teanaway River near its confluence with Jack Creek. There are six raceways at each site: three for each of the SNT and OCT experimental treatments (See M & E *sub-proposal*).

Facilities. The Prosser Fish Facility (PFF) is the central facility for the production of coho and fall chinook in the lower Yakima River. In addition, the YKFP initiated an accelerated growth treatment for fall chinook smolts, and a stock (in basin vs. out-of-basin) survival experiment for coho smolts at the site. For a detailed description of these studies see the YKFP M&E sub-proposal (# 9506325). The facilities consist of 7 raceways, 3 ponds for broodstock holding and juvenile rearing/acclimation, egg incubation facilities, groundwater wells, a pump station on Chandler Canal, cleaning waste ponds for waste treatment, access roads, a storage building, office, parking. A combination of surface water from the Yakima River and groundwater from nearby wells supplies water for facility operation. The PFF also includes up to 5 acclimation facilities along the Yakima and Naches rivers. Each site consists of semi-natural rearing ponds. The ponds are also supplied by surface water from adjacent rivers.

Facilities. The Marion Drain Fish Facility (MDFF) is the facility for the production of fall chinook for release into Marion Drain, an irrigation water return drain emptying into the lower Yakima River. The facility consists of 4 raceways, 2 adult holding and juvenile rearing/acclimation ponds, egg incubation facilities, groundwater wells, a pump station on the drain, access roads, a storage building, office, parking, and an employee residence. A combination of surface water from Marion Drain and groundwater from nearby wells supplies water for facility operation.

h. Budget

Personnel - Monies requested for personnel include all YIN biologists and technicians required to effectively carry out all operation and maintenance tasks outlined in Section 8e. Personnel accounts for approximately 36% of the overall budget due to the tasks required to culture fish used to achieve the overall Project objectives and goals.

Fringe – This amount is calculated on rates of 20% for non-tribal members and 17.6% for tribal members.
Supplies – This amount is based on the equipment needed for operating and maintaining Project facilities. Equipment includes fish feed, chemicals, and other supplies needed to culture fish and maintain fish health, vehicles and associated mileage.
O&M – This amount is used to do routine facility maintenance on facility equipment.
Capital Equipment – This money will be used to purchase pumps, and other water delivery-related support equipment.
PIT tags –None
Travel – This money is used to attend conferences, meetings, and workshops to develop technologies, and disseminate results from this project.
Indirect – This money is based on an indirect rate negotiated by the YIN and the federal government consistent with applicable law.
Subcontracts – Included in this budget item are the following subcontracts:
USFWS ($130,177): to monitor fish health at CESRF, PFF and MDFF.
Perry Boone ($29,410): Employee housing rental
Simplex: ($2752): Alarm system for CESRF
Ros Elum Inc. ($9,730) to do facility maintenance and janitorial services CESRF
Burlington Northern Railroad ($1,000): Provides a traffic signal at the CESRF road/railroad junction.
Kittitas County: ($7,200): Snow removal and road maintenance for the CESRF.
City of Cle Elum ($2,500): Fire protection for the CESRF.
Personal Communication Industry Association ($630): Radio maintenance for communication system from the Jack Creek acclimation Facility associated with CESRF.
Yet to be Determined ($8,320): Interpretive center janitorial services at CESRF.
Yet to be determined ($20,000) to do facility maintenance and janitorial services at PFF and MDFF.

Section 9. Key personnel

Name (alphabetically)	Title	Agency	FTE (mos.)	Expertise/Role
Dan Barrett	CESRF Complex Manager	YIN	12	Manages the Cle Elum Supplementation and Research Facility
Joe Blodgett	Fisheries Biologist	YIN	12	Manager of Prosser and Marion Drain Fish Facilities
David Fast	Research Manager	YIN	12	Science and Technical Advisory Team; supervision of all YIN research.
Bill Fiander	Fisheries Biologist	YIN	12	Prosser and Marion Drain Fish Facilities Project Coordinator

Jason Rau	Fisheries Biologist	YIN	12	Cle Elum Supplementation Research Facility Research Biologist
Mel Sampson	Policy Advisor-Project Coordinator	YIN	12	YIN Project Coordinator for the entire YKFP
Tom Scribner	Enhancement Manager	YIN	12	YIN fisheries enhancement manager.
Charles Strom	CESRF Assistant Manager	YIN	12	Assists hatchery manager in daily facility operations at Cle Elum Supplementation Research Facility

DAN C. BARRETT

EXPERIENCE:

5/97 – Present: Cle Elum Supplementation and Research Facility Complex Manager.

11/89 to 4/97 : ODFW: Fish and Wildlife Manager "3" Bonneville Fish Hatchery

3/82 to 11/89: ODFW: Fish and Wildlife Manager"B" Roaring River Fish Hatchery

3/80 to 3/82: ODFW: Supervisor Fish and Wildlife Technician 3 Willamette Fish Hatchery

8/75 to 3/80: ODFW: Production Foreman at Bonneville Fish Hatchery.

6/72 to 7/75: ODFW: Foreman at Alsea Salmon Hatchery.

EDUCATION:

Oregon State University, Corvallis, Oregon 1962-1965
Major: Fisheries Science -- did not graduate

Mt. Hood Community College, Gresham, Oregon 1979-1980
Major: Fisheries Technology -- Associate Degree.

LICENSES:

Fork lift, multi-media first aid. Defensive drivers training, deputy game warden.

Awards: AFS - Oregon Chapter- Bill Wingfield Memorial Award for "Fish Culture Excellence"
AFS - Western Division- Award of Merit
ODFW- Pride Award - Community Service, Work performance, Dedication
ODFW - Manager of the Year (Columbia Region)

Joe Blodgett

YIN Production Biologist. Supervises fish propagation activities for the project. Develops facility needs and biological criteria for all fish rearing operations with the fall chinook and coho project.

EDUCATION

1994-1997 Central Washington University
Bachelor of Science
Major: Fish Biology

1989-1992 Mt. Hood Community College
Associate of Applied Science
Major: Fishery Techniques

EXPERIENCE

6/97-Present Yakama Indian Nation
Title: Fisheries Biologist

Assists and supervises fish enhancement/supplementation projects done by the Yakama Indian Nation. Projects include Yakima fall chinook, Yakima coho, Mid-Columbia coho, K-Basin fall chinook, and sturgeon enhancement programs. Primarily responsible for: 1). 1). determining biological criteria for fish; 2). Scheduling fish rearing activities. 3). Monitoring success of rearing facilities. 4). Developing plans for future improvements to hatcheries/acclimation sites. Assist in preparing and managing yearly budgets.

9/89-6/97 Yakama Indian Nation
Title: Fish Culturist IV

Worked at Bonneville Fish Hatchery under the BPA training and education program. Duties included activities involved with salmon hatchery operations. Spawned adult chinook brood, worked in the egg incubation building assisting in salmon egg fertilization, enumeration and propagation activities. Worked with the juvenile salmon through the rearing period from the fry to the smoltification stage. Performed daily maintenance of hatchery facility.

Worked for YIN on fall chinook and coho acclimation projects. Surveyed potential rearing sites and assisted in designing acclimation/hatchery sites. Responsible for developing feed schedules and other rearing activities. Monitored all aspects of fish culture related to the project including fish health and growth. Other duties included: 1). 1). Snorkeling surveys 2). Electrofishing for juvenile and adult brood salmon 3). Evaluating adult capture techniques. 4). Assessing stream habitat 5). Spawning ground surveys.

DAVID E. FAST

Fisheries Resource Management
P.O. Box 151
Toppenish, Washington 98948
Work: 509-966-5291

Education

University of Washington, Seattle, Washington
Doctor of Philosophy in Fisheries Science, 1987.

University of Puerto Rico, Mayaguez, Puerto Rico
Master of Science in Marine Sciences, 1974.
St. John's University, Collegeville, Minnesota
Bachelor of Science in Zoology, 1969.

Research Experience

1988-Present: Research Manager. Fisheries Resource Management Program, Yakima Indian Nation. Responsible for the design, development, and implementation of a major supplementation and research facility to test the concept of using artificial production to rebuild natural spawning populations of spring chinook salmon in the Yakima Basin. Write detailed project plans, develop short and long-term project goals and objectives, and supervise professional and technical staff.

1985-1988: Project Leader. Spring Chinook Enhancement Study.
Responsible for research project designed to determine the best methods of enhancing the spring chinook salmon population in the Yakima Basin. Evaluate survival through various life stages and total production of naturally producing salmon. Determine methods of supplementation with hatchery reared fish while minimizing adverse genetic impacts.

Fast, D.E. 1987. The Behavior of salmonid alevins in response to light, velocity and dissolved oxygen during incubation.
Pages 84-92 in Salmonid Migration and Distribution Symposium (E.L. Brannon, ed.), School of Fisheries, University of Washington, and Directorate for Nature Management, Norway, Trondheim, Norway.

Fast, D.E., J.D. Hubble, T.B. Scribner, M.V. Johnston, W.R. Sharp.
1989. Yakima/Klickitat Natural Production and Enhancement Program. 1989 Annual Report to Bonneville Power Administration. Project 88-120. 107 pp.

Fast, D.E. 1989. Supplementation Strategies For The Yakima/Klickitat Production Facility.
Pages 143-147 in Northwest Fish Culture Conference Proceedings (R.Z. Smith, ed.).

William H. Fiander

EDUCATION:

90-92	Bachelor of Science Degree in Biology, Central Washington University, Ellensburg., Washington
73-77	Bachelor of Arts Degree in Anthropology and Bachelor of Arts Degree in Native American Studies, Central Washington University, Ellensburg., Washington
71-73	General Studies, Yakima Valley Community College, Yakima, Washington
70-71	General Studies, Wenatchee Valley Community College, Wenatchee, Washington
66-70	High School Diploma, White Swan High School, White Swan, Washington

TRAINING:

96	Northwest Fish Culture Conference, Victoria, B.C. College of Southern Idaho Sturgeon Workshop U.C. Davis Sturgeon Workshop Pacific Northwest Fish Health Protection Committee Meeting San Diego, California
95	Fish Genetics, Anchorage, Alaska
94	Northwest Fish Culture Conference OJT Northwest Indian Fisheries Commission Pacific Northwest Fish Health Protection Committee International Symposium of Aquatic Animal Health, Seattle, Washington Cold Water Fish Culture Course, Bozeman, Montana
93	Native American Fish & Wildlife Society Pacific Region Conference Laboratory Technician Workshop, Olympia, Washington Western Fish Disease Workshop, Port Townsend, Washington Organosomatic Workshop, Wenatchee, Washington
92	Fish Health Short Course, Gresham, Oregon

WORK EXPERIENCE:

96-97	Supervised Marion Drain Hatchery
94-97	Supervised K-Basin Projects- Fall Chinook, Sturgeon, Rainbow Trout Supervised Yakima Basin Fall Chinook Acclimation Project Supervised Yakima Basin Coho Acclimation Project Supervised Prosser Tribal Hatchery
92-97	Supervised BPA Training and Education Program
92	Reclassified to Biologist I

90-92	Reclassified to Trainee Progression
89-90	Tech IV- Spawning Grounds Survey, Fish Traps, Electro-Shocking
85-89	Tech III- Spring Chinook Enhancement Study, Reservation Fish Study, Spawning Grounds Survey, Fish Traps, Electro-Shocking
84-85	Tech II- Spring Chinook Enhancement Study
83-84	Tech I- Spring Chinook Enhancement Study

PUBLICATIONS:

1997	Yakama/Klickitat Natural Production and Enhancement Program Training and Education Task Order 4.0 Annual Report CY 1997 Prepared by Melvin R. Sampson and William Fiander
1996	Yakama/Klickitat Natural Production and Enhancement Program Training and Education Task Order 4.0 Annual Report CY 1996 Prepared by Melvin R. Sampson and William Fiander
1975	"Collecting Historical Artifacts," by William Fiander Printed for Resources Development Internship Program Western Interstate Commission for Higher Education

Jason Rau

Experience:

1. 6/97- present: Research Fish Biologist at CESRF

2, 1991-1996: Fisheries Technician for YIN

3. 1986-1991: Fisheries Technician I (seasonal) for YIN

Education:

Graduated from Mt. Hood Community College with an Associate of Applied Science Fisheries
Techniques degree, Attended Fall, 1988 - June, 1989.

Attended University of Washington (UW) Fall, 1992 - thru Spring, 1994
(Not under BPA, T&E funding)

Attended UW Fall Quarter, 1994 (Re-started under T&E program)

Transferred to Yakima Valley Community college, Winter & Spring quarters, 1995.

Graduated from UW with a B. S. degree in Fisheries science, June, 1997.

Melvin R. Sampson
370 N. Brown Rd
Wapato, WA 98951

Work Experience

2/93-Present: Policy Advisor/Project Coordinator; Yakima/Klickitat Fisheries Project Yakama Indian Nation's Policy representative with coordination responsibilities for the YKFP.
1989-1992: Private business; Petroleum and Convenience Store.
1985-1989: Chairman, Yakama Tribal Council
1971-1989: Elected and served on Yakama Tribal Council
1971: Yakama Indian Nation; Tribal Planner
1969-1970: Assistant Manager/Personnel Manager; Wholesale Furniture Manufacturer
1968-1969: Resident Counselor; Fort Simco Job Corps
1967-1968: Manager Trainee; Wholesale Furniture Manufacture
1965-1967: Industrial injury; Not employed
1961-1965: College student: Full time employee lumber planner mill; Longview, WA.
1959-1961: Active service; U.S. Army
1956-1959: Fisherman (Celilo); Boeing Aircraft; Construction; Farm Labor

Education

White Swan High School, graduate 1956
Lower Columbia College; Associate Degree, 1963
Lower Columbia College, Business Major
Central Washington State College; Major; Sociology, Minor; Psychology, Business
American Indian Management Institute, Albuquerque, NM; Tribal Executive Development

Military Experience

1959-1965: Veteran, U.S. Army, Honorable Discharge, Sgt. E-5.

Hobbies and Interests

Hunting, Fishing, Horses, Rodeo, Sports, Leather Crafts.

Personal Data

Date of Birth: April 20, 1938
Marital Status: Married, 5 daughters; 1 son
Enrolled member: Yakama Indian Nation

Tom Scribner
P.O. Box 151
Toppenish, WA 98948
(509) 865-6262

EDUCATION

1975-77 University of Washington Master of Science Degree, 1977
Major: Fisheries

1967-71 Middlebury College Bachelor of Arts Degree, 1971
Major: Biology (Dean's List)

EXPERIENCE

7/82 - present Yakima Indian Nation
Title: Fisheries Enhancement Manager

Oversee all salmon and trout production for the Tribe including all fish propagation/outplantings done by the Yakima Nation or any other fisheries agency.

Tribal representative on the Integrated Hatchery Operations Team. The team's purpose is to both develop and coordinate regional hatchery policies concerning fish health, genetics and ecological conditions and to provide hatchery performance standards. The team is also developing a hatchery audit procedure and policy implementation plans.

Tribal representative on the Production Advisory Committee (PAC) established to exchange information and to review and analyze present and future artificial and natural production programs pursuant to the U.S. v. Oregon Columbia River Fish Management Plan. Committee Chairman, 1993; re-elected for 1994 and 1995.

PUBLICATIONS

M.S. Thesis, 1977. Relationship Between Growth and Population Density in Sockeye Salmon Fry, 111 pgs.

"Recommendation for Proposal and Evaluation of Salmonid Facilities", 84 pgs. (Publication for Congressional Act; Salmon and Steelhead Enhancement Act, 1980).

"Evaluation of Potential Species Interaction Effects in the Planning and Selection of Salmonid Projects", 72 pgs. (same publication conditions as above).

Scribner, T.B. 1993. "Spring Chinook Spawning Ground Surveys of the Methow River Basin." Report to Public Utility District No. 1 of DouglasCounty. Yakima Indian Nation, Fisheries Resource Management Program. Toppenish, WA.

Charles R. Strom

Experience:

1. 6/97-present: Manager Assistant CESRF

2. 1993-1997: Fisheries Technician for YIN: assigned to a wide variety of projects.

3. 1991-1993: Fish Culturist at Bonnevile Fish Hatchery

4. 1989-1991 (Christmas, Spring and Summer Breaks from Mt. Hood Community College): Assigned to the Bonneville Fish Hatchery

Education

Graduated from Mt. Hood Community College with an Associate of Applied Science Fisheries Techniques degree, Attended 09/19/89 - 06/01/91.

Graduated from Yakima Valley Community College with an Associate of Science degree, June, 1994.

Graduated from Central Washington University with Bachelor of Science degree, June 1997.

Section 10. Information/technology transfer

The technical information resulting from this project (and its component tasks) will be distributed in the following ways:

- A completion (annual) report will be submitted to Bonneville at the close of the fiscal (calendar) year and Bonneville will distribute copies to all individuals and agencies on its mailing list.
- Where appropriate, results from this project will be presented in papers in peer-reviewed journals and at professional meetings.
- Excerpted data will be appropriately formatted and submitted to the Northwest Aquatic Information Network (StreamNet) and made available to the public via the Internet.
- As an element of the YKFP, the objectives and findings of this project will also be entered into the YKFP home-page on the Internet. This home-page is currently under construction, and should be operational some time in 1998. The kind of information posted to the YKFP home-page will differ somewhat from that posted to StreamNet. Specifically, the YKFP Internet site will contain more detailed and site-specific information than that in StreamNet, which has a regional perspective and therefore aggregates data in standardized units of larger geographic scope. There will also be more different kinds of data posted to the YKFP site than can presently be accommodated by StreamNet.
- The results of this study will also be presented and critiqued in an annual workshop hosted by the YKFP, the "Project Annual Review". The Yakama Indian Nation can be contacted for abstracts of presentations made at this workshop.

Congratulations!